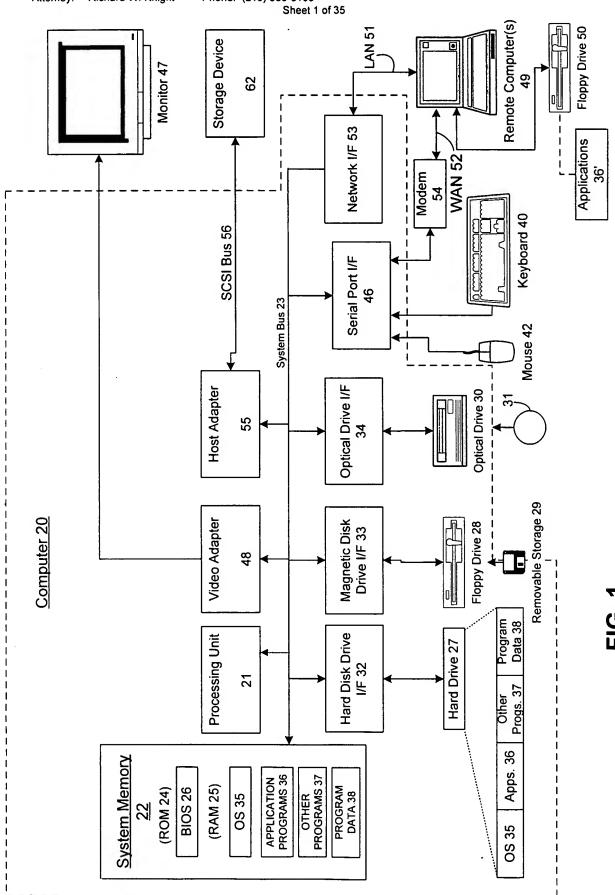
Inventors: LEV NOVIK

Phone: (215) 568-3100 Attorney: Richard W. Knight

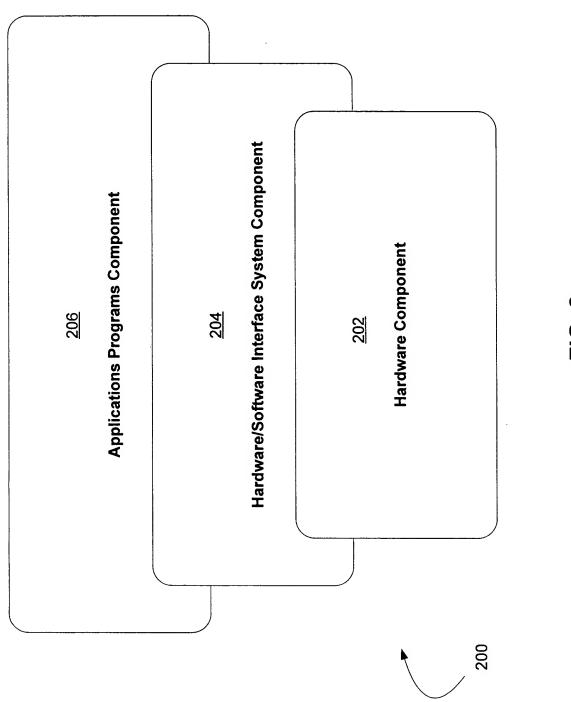


Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

Sheet 2 of 35

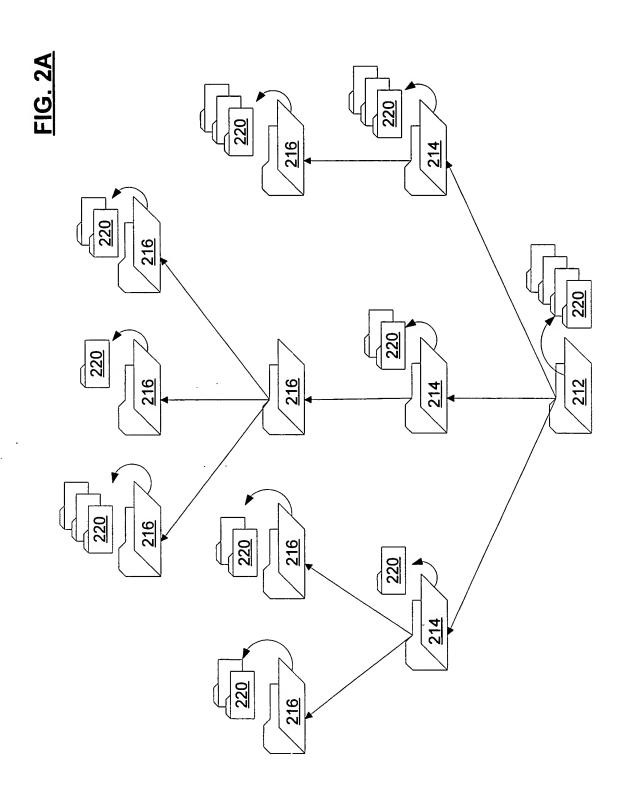


Inventors: LEV NOVIK

Attorney: Richard W. Knight

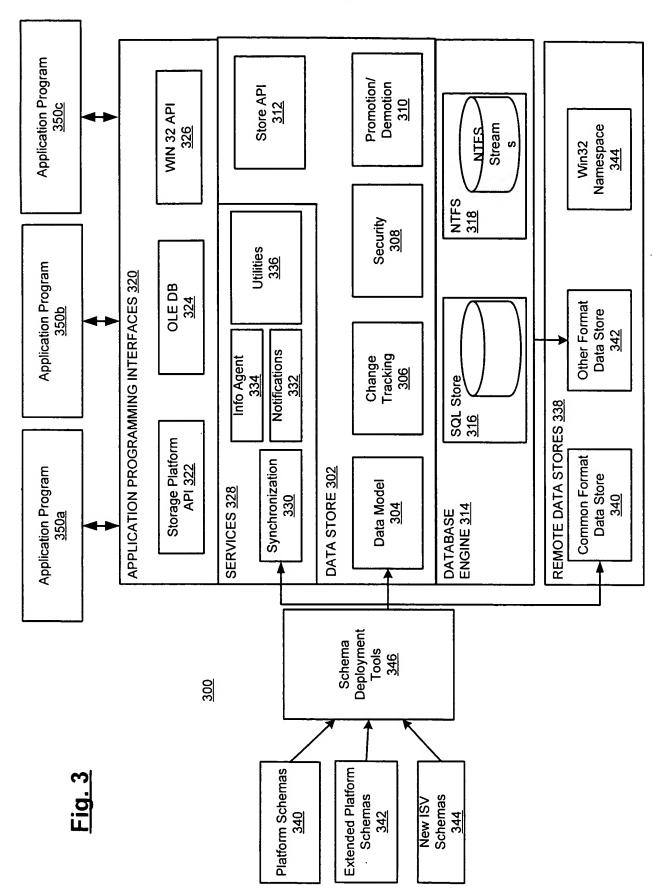
Phone: (215) 568-3100

Sheet 3 of 35



Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith
Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION
SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM
Inventors: LEV NOVIK
Attorney: Richard W. Knight Phone: (215) 568-3100

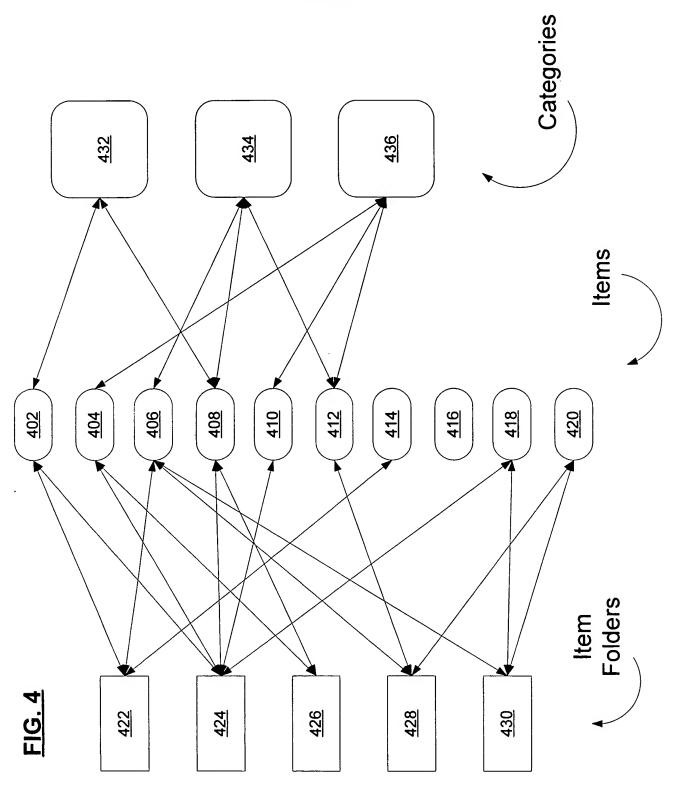
Sheet 4 of 35



Inventors: LEV NOVIK

Phone: (215) 568-3100 Attorney: Richard W. Knight

Sheet 5 of 35



Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

Sheet 6 of 35

PostalAddresses:PostalAddress[0:\*] MetropolitanRegion:nvarchar[0:1] Neighborhood:nvarchar[0:1] Eaddresses:Eaddress[0:\*]

Core.Location

## Core. Postal Address

PostalAddressType:CategoryRef[0:\*] StateOrProvince:nvarchar[0:1] CountryCode:nvarchar[0:1] PostalCode:nvarchar[0:1] MailStop:nvarchar[0:1] Street:nvarchar[0:1] City:nvarchar[0:1]

### Core. EAddress

AccessPoint:nvarchar[0:1]

EAddressService:uniqueidentifier[0:1] Technology Model: Category Ref[0:\*] EAddressDescription:nvarchar[0:1] ServiceType:CategoryRef[0:\*] StartDate:datetime[0:1] EndDate:datetime[0:1]

Core.Location

EAddressService:uniqueidentifier[0:1] TechnologyModel:CategoryRef[0:\*] EAddressDescription:nvarchar[0:1] PostalAddresses:PostalAddress[0:\*] MetropolitanRegion:nvarchar[0:1] ServiceType:CategoryRef[0:\*] AccessPoint:nvarchar[0:1] Neighborhood:nvarchar[0:1] StartDate:datetime[0:1] Eaddresses:Eaddress[0:\*] EndDate:datetime[0:1]

PostalAddressType:CategoryRef[0:\*] StateOrProvince:nvarchar[0:1] CountryCode:nvarchar[0:1] PostalCode:nvarchar[0:1] MailStop:nvarchar[0:1] City:nvarchar[0:1]

Street:nvarchar[0:1]

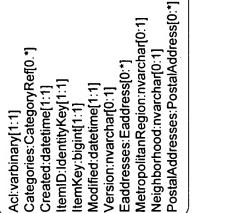
Inventors: LEV NOVIK

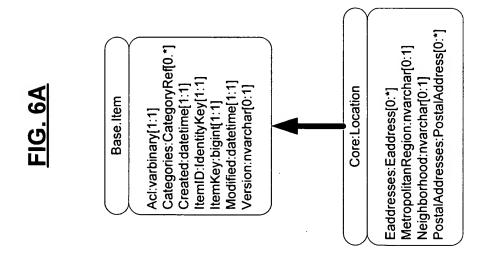
Attorney: Richard W. Knight

Core:Location

Phone: (215) 568-3100

Sheet 7 of 35

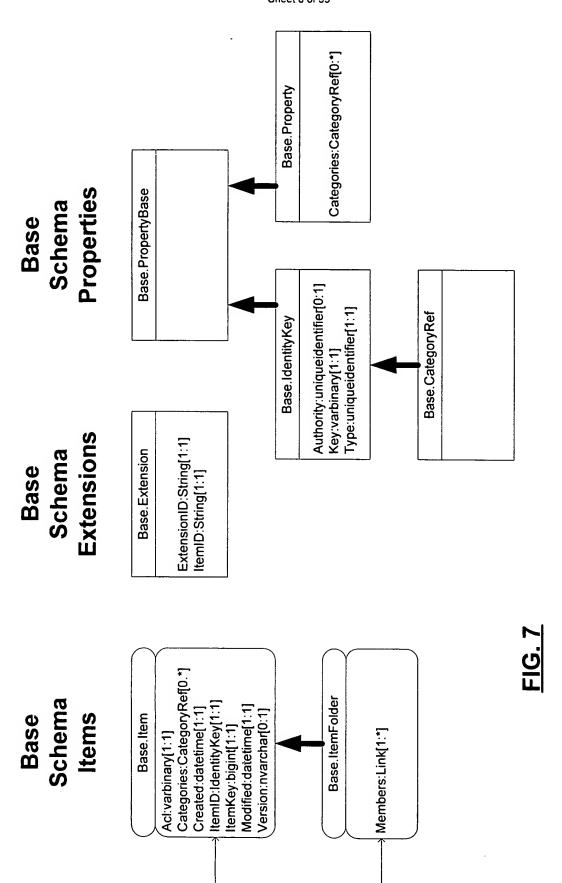




Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100 Sheet 8 of 35



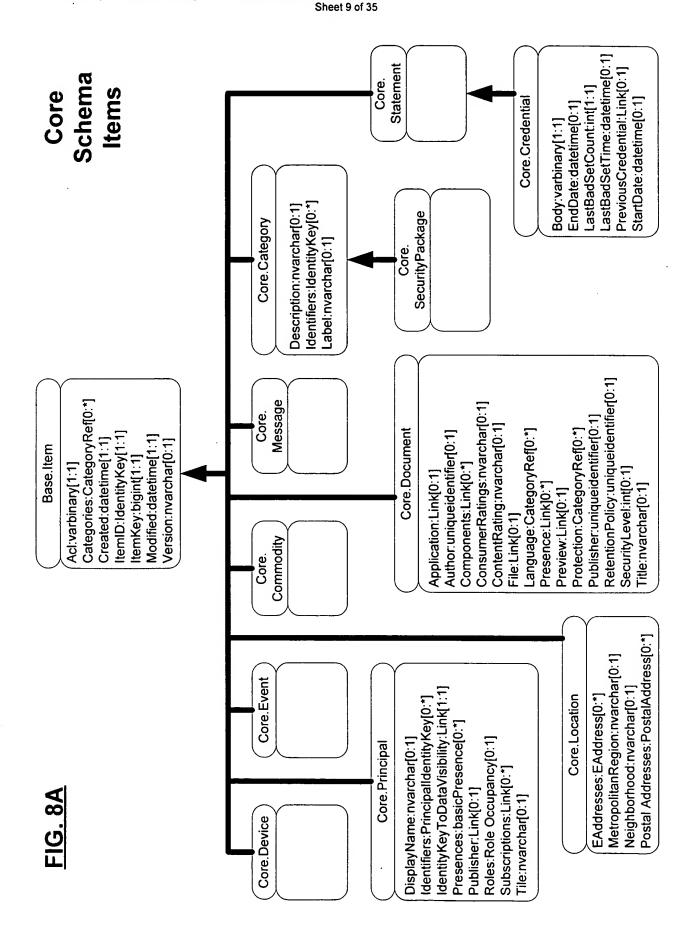
Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith

Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

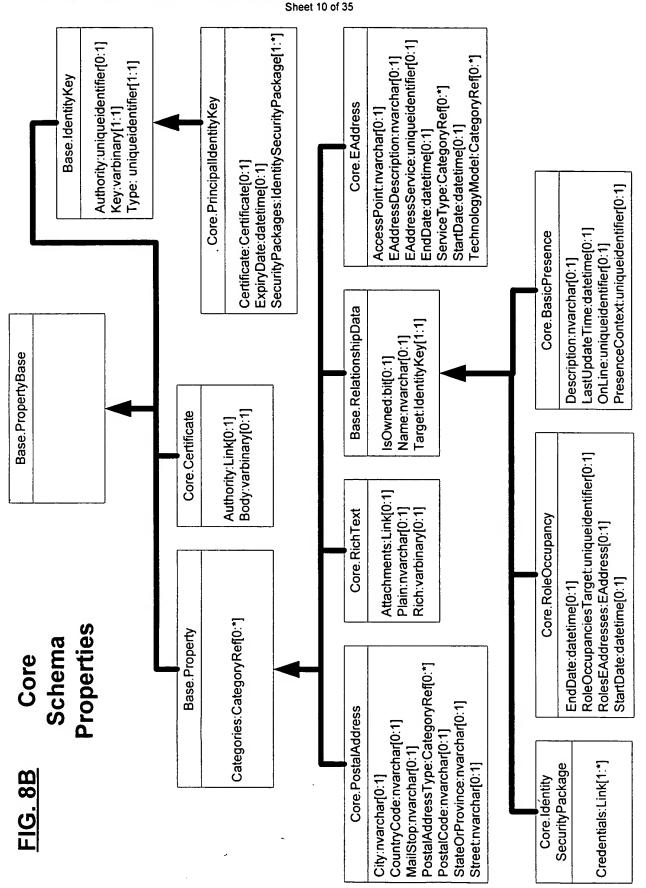
Attorney: Richard W. Knight

Phone: (215) 568-3100



Inventors: LEV NOVIK

Richard W. Knight Attorney: Phone: (215) 568-3100



Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith

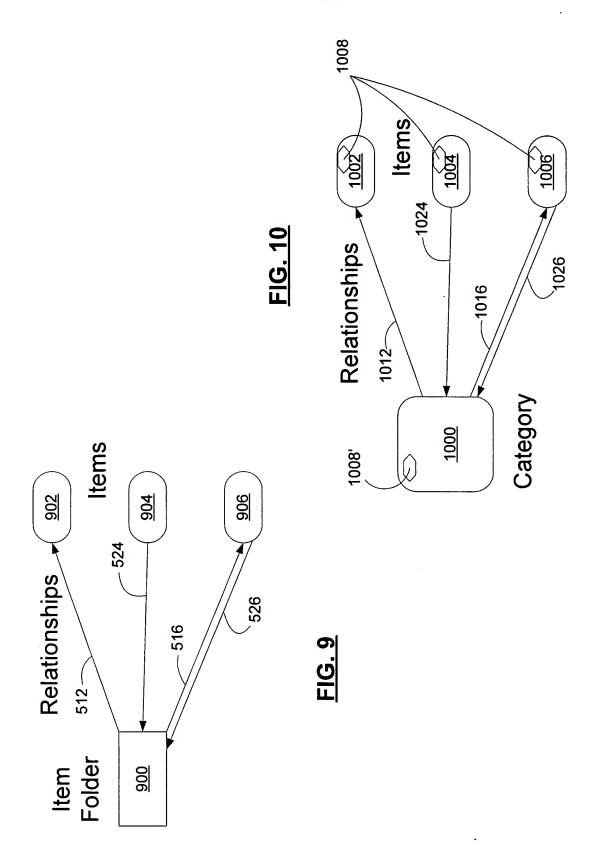
Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

Attorney: Richard W. Knight

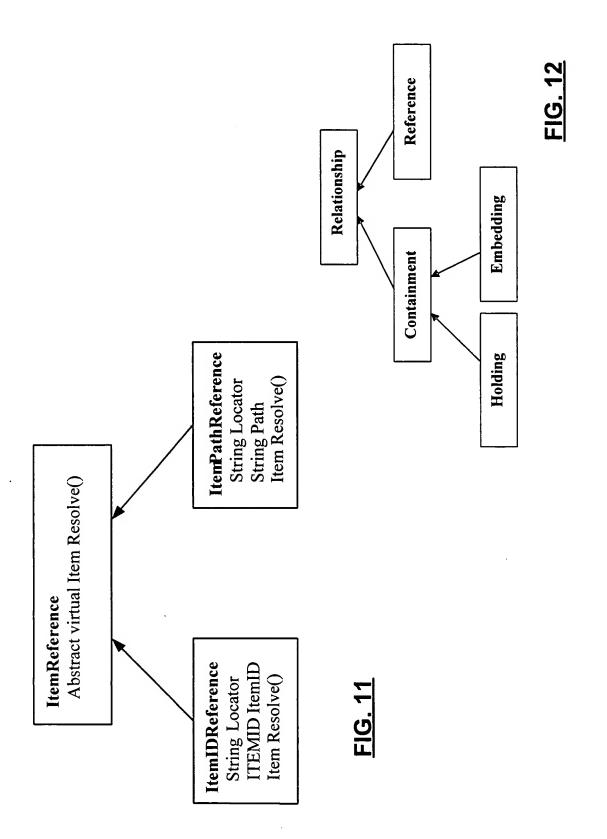
Phone: (215) 568-3100

Sheet 11 of 35



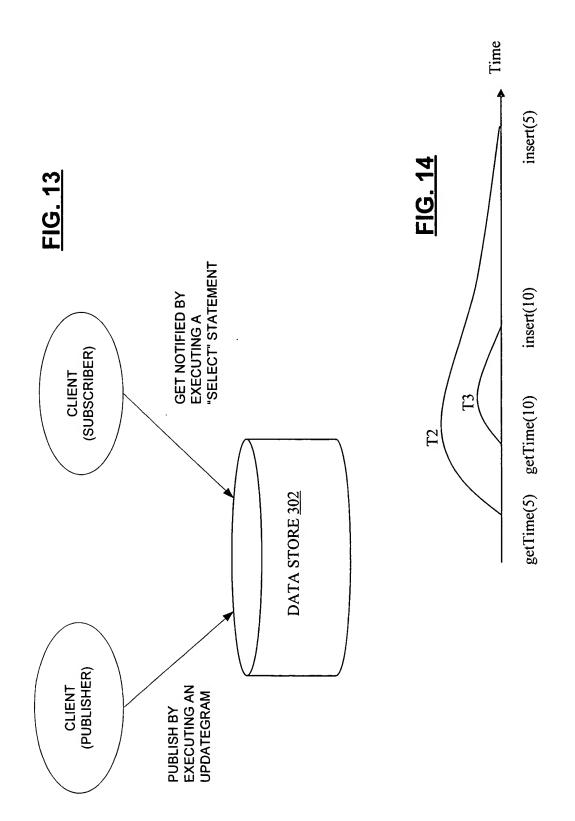
Inventors: LEV NOVIK
Attorney: Richard W. Knight

Phone: (215) 568-3100 Sheet 12 of 35



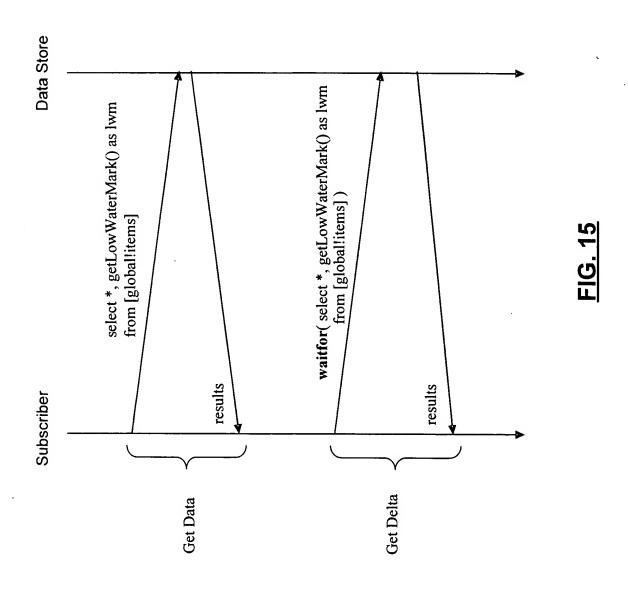
Inventors: LEV NOVIK
Attorney: Richard W. Knight

Phone: (215) 568-3100 **Sheet 13 of 35** 



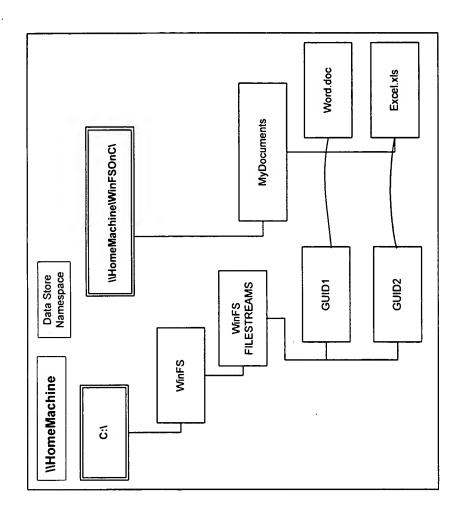
Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith
Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION
SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM
Inventors: LEV NOVIK
Attorney: Richard W. Knight Phone: (215) 568-3100

Sheet 14 of 35



Inventors: LEV NOVIK
Attorney: Richard W. Knight

Phone: (215) 568-3100 Sheet 15 of 35



\\HomeMachine Word.doc Excel.xls Windows\System32 My Documents Namespace Local ပ်

Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION

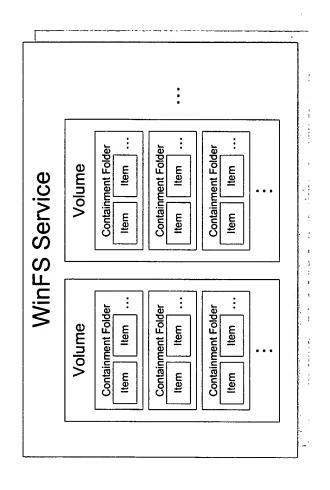
SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

Attorney: Richard W. Knight

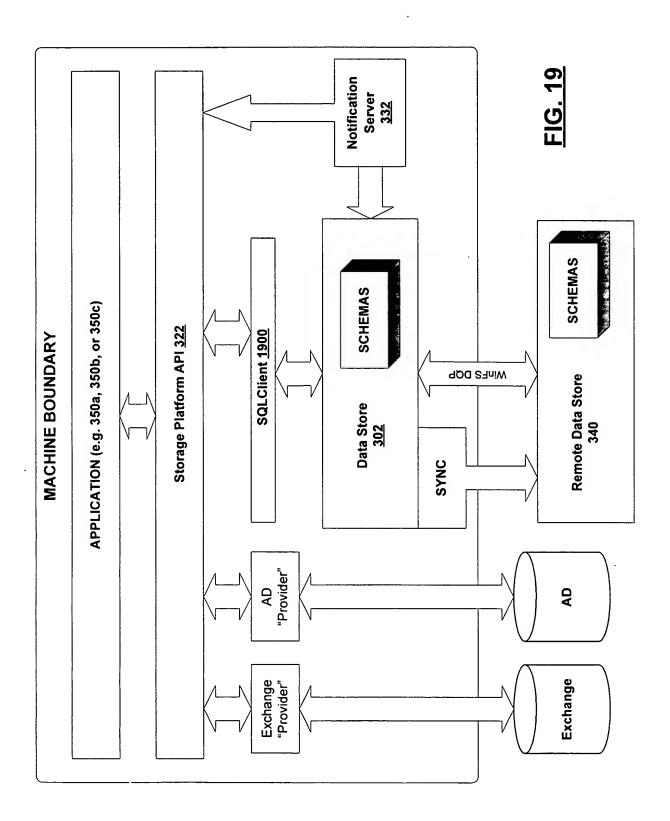
Phone: (215) 568-3100

Sheet 16 of 35



Inventors: LEV NOVIK
Attorney: Richard W. Knight

Phone: (215) 568-3100 Sheet 17 of 35



Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith

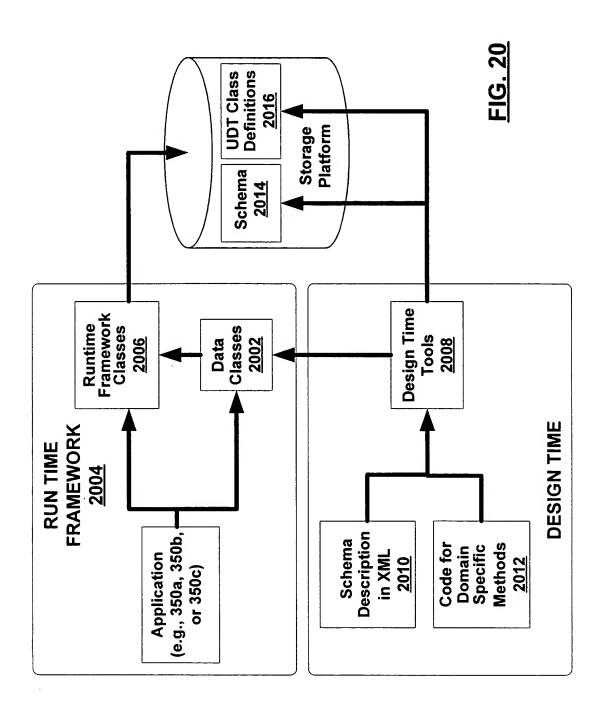
Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

Sheet 18 of 35

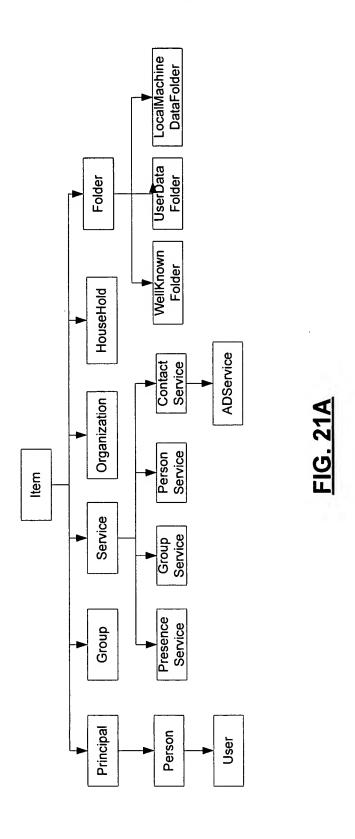


Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

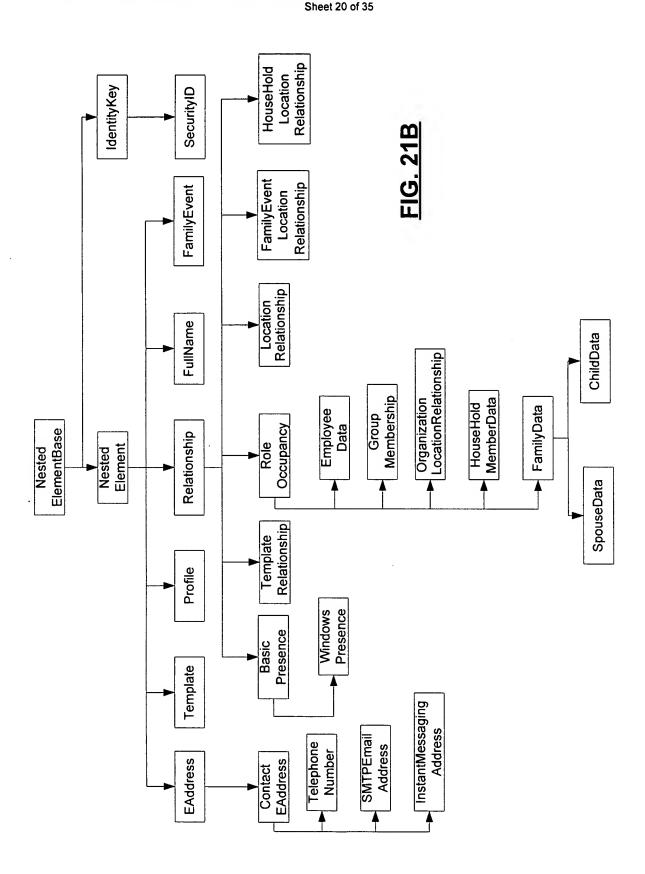
Sheet 19 of 35



Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

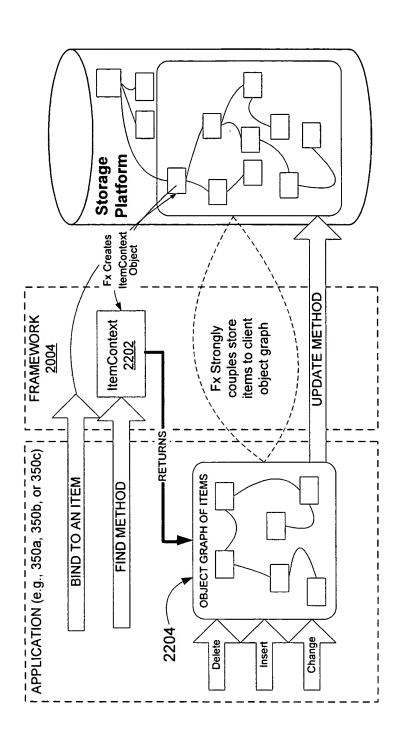


Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

Sheet 21 of 35

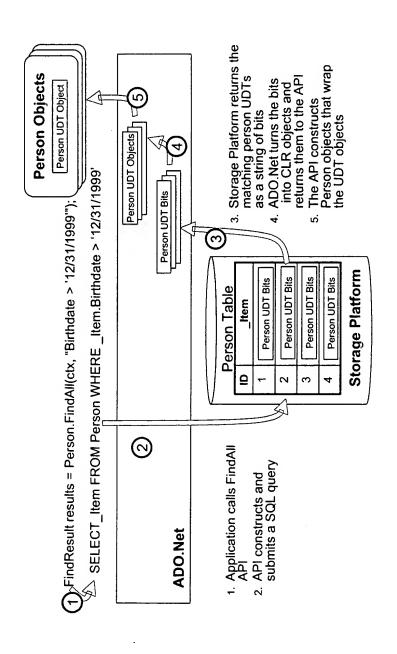


Inventors: LEV NOVIK

Attorney: Richard W. Knight

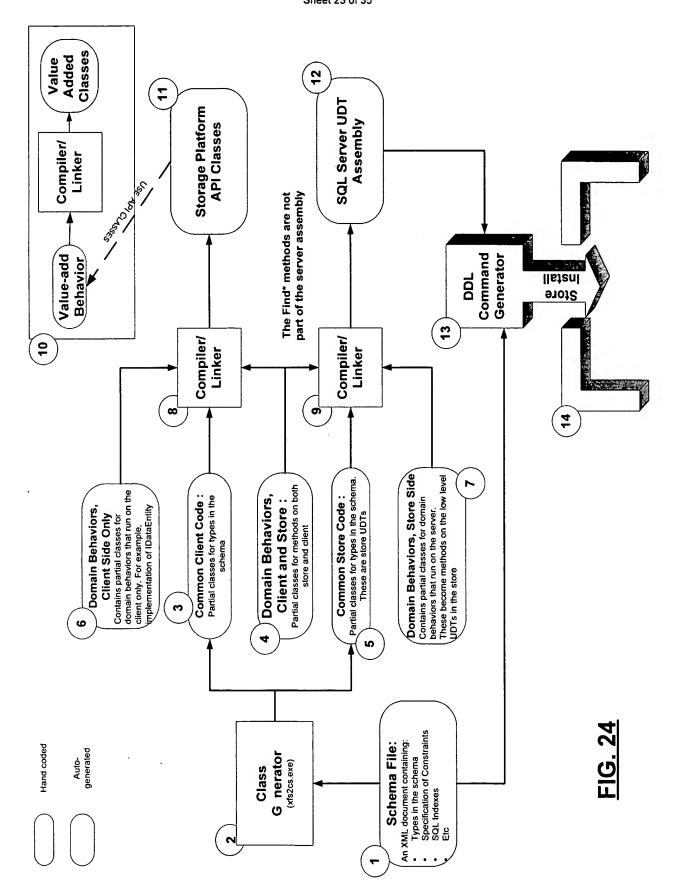
Phone: (215) 568-3100

Sheet 22 of 35



Richard W. Knight Attorney:

Phone: (215) 568-3100 **Sheet 23 of 35** 



Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith

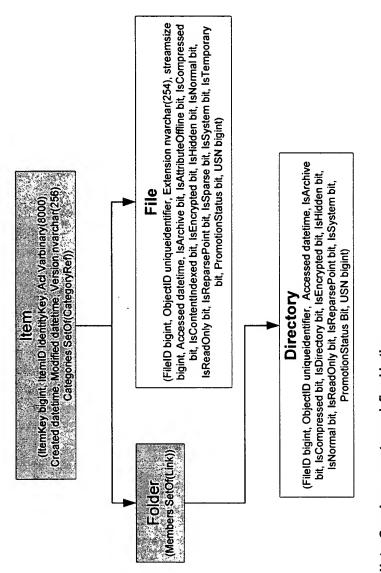
Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

**Sheet 24 of 35** 



Note: Grey boxes are types defined in the Base schema, but are shown here for the sake of completeness.

# Items Defined in the Files Schema

Attorney: Richard W. Knight

Phone: (215) 568-3100

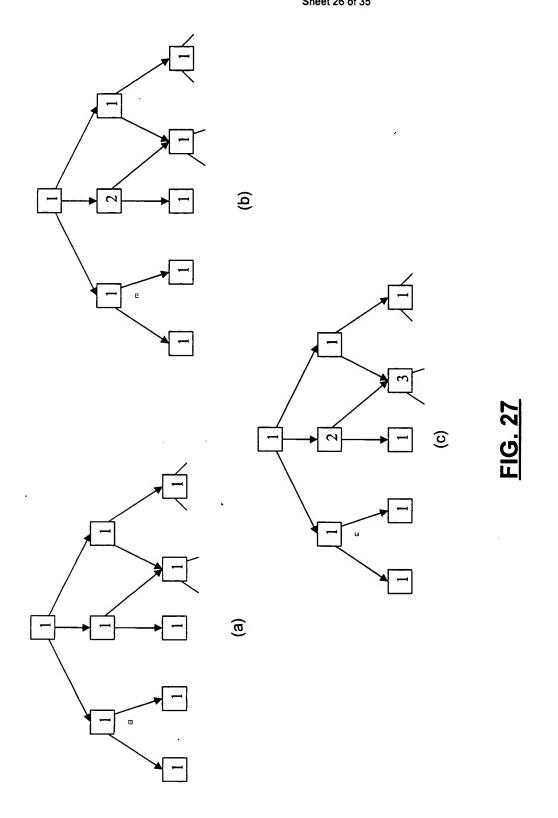
Sheet 25 of 35

0					
-					
2	Object-Specific Access Rights				
က					
4					
5					
9					
7					
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 1 0					
თ					
10	ect-6				
7	Obje				
12					
13					
14					
15					
16					
1,4					
9	ard SS				
19	Standard Access Rights				
20	# ₹ <del>~</del>				
72					
22					
23	∢ ທ				
24	ਲ				
25	Reserved				
26					
27	<u> </u>				
28	୦ ଏ				
83	ОШ				
8	ଚନ ଚ≷ ଚଳ				
8	ଓଟ				

				ب
> Generic_Read	> Generic_Write	> Generic_Execute	> Generic_ALL	> Right to access SACL
왕	; ≩	뜅	GA -	AS :

Inventors: LEV NOVIK
Attorney: Richard W. Knight

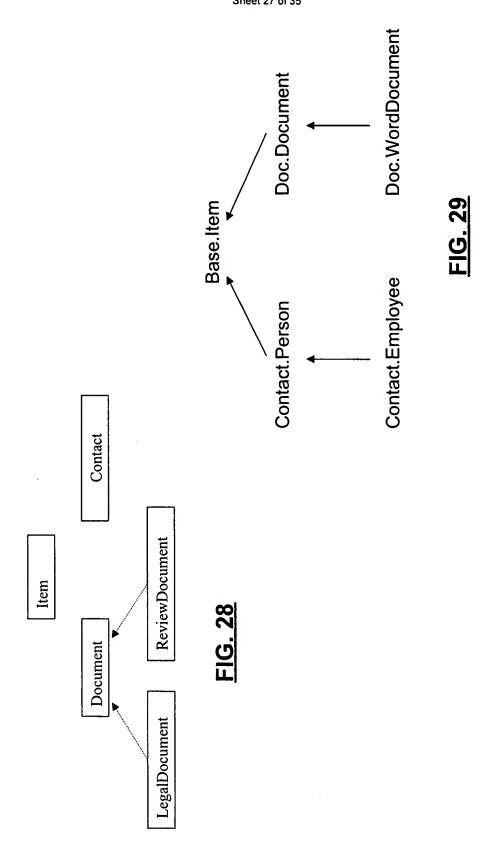
Phone: (215) 568-3100 Sheet 26 of 35



Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100 Sheet 27 of 35



Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION

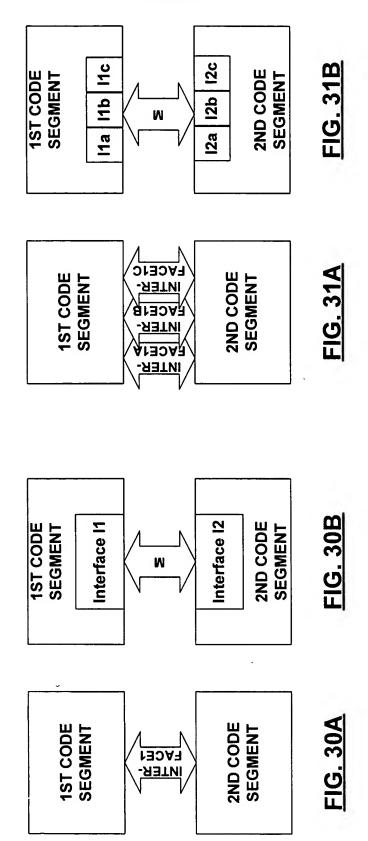
SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

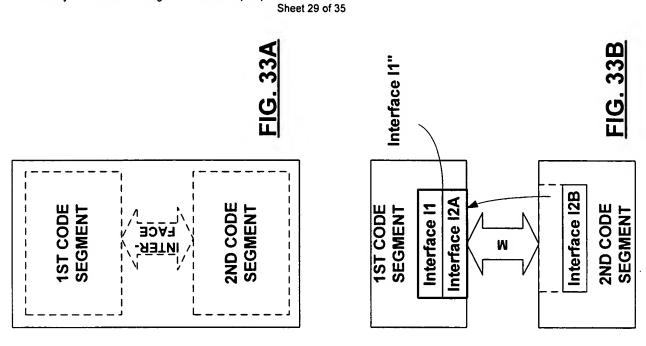
**Sheet 28 of 35** 

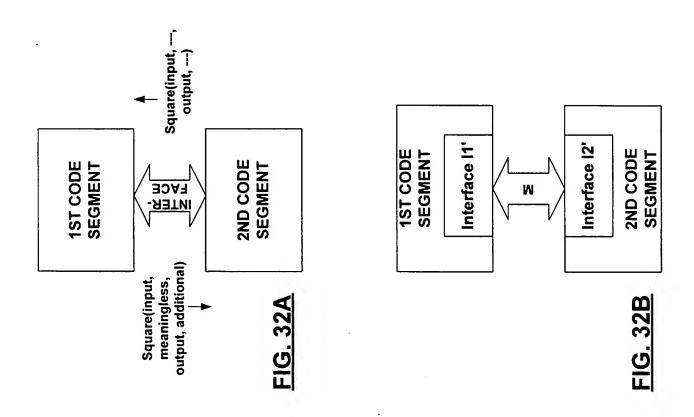


Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100



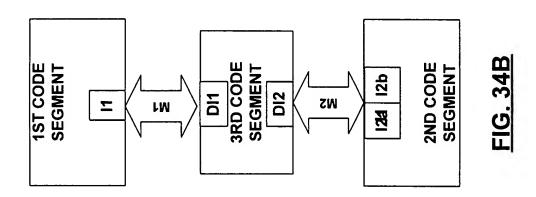


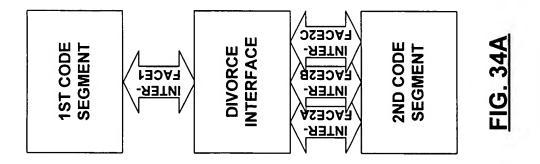
Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

**Sheet 30 of 35** 



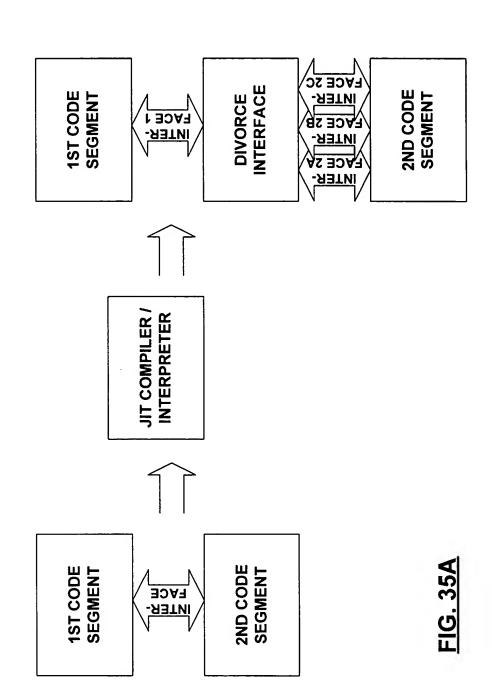


Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

**Sheet 31 of 35** 

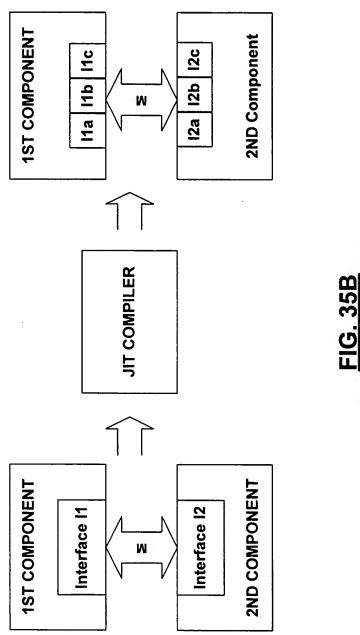


Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

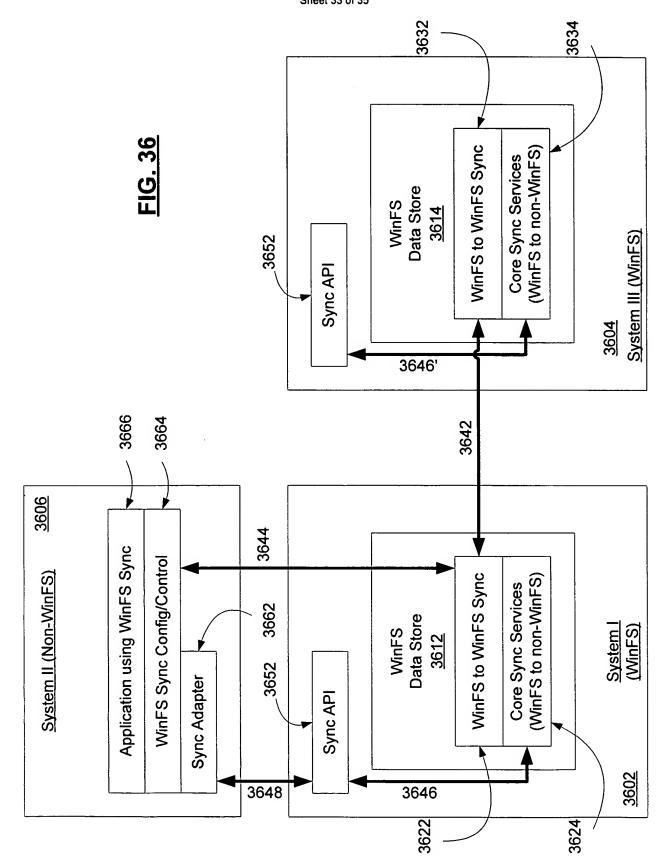
Sheet 32 of 35



Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100 **Sheet 33 of 35** 



Docket No.: MSFT-2845 / 306724.01 App. No.: Not Yet Assigned Filed: Herewith

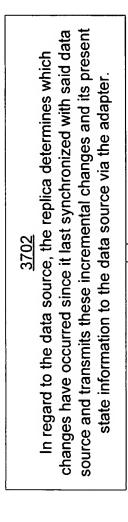
Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Inventors: LEV NOVIK

Attorney: Richard W. Knight

Phone: (215) 568-3100

Sheet 34 of 35



The adapter, upon receiving the change data from the replica, implements as many changes to the data source as possible, tracks which changes are successful and which fail, and transmits the success-and-failure info back to WinFS (of the replica).

WinFS, upon receiving the success-and-failure info from the replica, calculates the new state information for the data source, stores same (ie, updates this state info for the replica), and transmits this new state info for the data sourced to the adapter for storage and subsequent use by the adapter.

FIG. 37

**Sheet 35 of 35** Step 2: Based on A's Step 2: Based on A's Vector, B send Vector request new changes now knowing that A1 Vector: [B2,A0] Vector: [B2,A1] Vector, B sends B1 B0 (initial state) B1 (chg CU Y) B2 (chg CU Z) B0 (initial state) updates its Vector. Replica B Step 4: B applies Replica B B1 (chg CU Y) B2 (chg CU Z) B0, A0] to A to change A1 and and B2 to A. Changes: Changes: exists...) Step 2' Step 2 Step 3' Step ' FIG. 38D Vector: [A1,B2] ← Vector [A1,B0] to B to equest new changes. Step 3": Based on B's Vector: [A1,B0] Vector, A send A1 to changes B1 and B2 A0 (initial state) A0 (initial state) Step 3: A applies Replica A A1 (chg CU X) Replica A A1 (chg CU X) Step 1: A sends and updates its Changes: Changes: Vector. Step 2: Based on A's Vector: [B0,A0] Vector: [B2,A0] Vector, B sends B1 B0 (initial state) B0 (initial state) B1 (chg CU Y) B2 (chg CU Z) Replica B Replica B and B2 to A. Changes: Changes: Step 2 Step Vector: [A1,B2] Vector [A1,B0] to B to request new changes. Vector: [A0,B0] changes B1 and B2 A0 (initial state) A0 (initial state) Step 3: A applies Replica A Replica A A1 (chg CU X) Step 1: A sends and updates its Changes: Changes: Vector.

App. No.: Not Yet Assigned

Title: SYSTEMS AND METHODS FOR PROVIDING RELATIONAL AND HIERARCHICAL SYNCHRONIZATION SERVICES FOR UNITS OF INFORMATION MANAGEABLE BY A HARDWARE/SOFTWARE INTERFACE SYSTEM

Phone: (215) 568-3100

Filed: Herewith

Docket No.: MSFT-2845 / 306724.01

Richard W. Knight

Inventors: LEV NOVIK

Attorney: